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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,317	08/08/2001	Eric V. Kline	FIS920010181US1	3594

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Sean F. Sullivan, Esq.
Cantor Colburn LLP
55 Griffin Road South
Bloomfield, CT 06002

EXAMINER	
LEUNG, CHRISTINA Y	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/924,317	KLINE ET AL.	
	Examiner	Art Unit	
	Christina Y. Leung	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-7 and 10-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-7 and 10-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4-7, and 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palen et al. (US 6,205,266 B1) in view of Dee et al. (US 6,690,864 B1).

Regarding claim 1, Palen et al. disclose a real-time, optoelectronic (OE) alignment system (Figure 3), comprising:

a first OE device (fiber 50);

a second OE device (detector 60) optically coupled to the first OE device;

a capturing means for maintaining the second OE device in a fixed position (Figure 7 shows detector 60 mounted on monolithic body 67; column 4, lines 30-34), the capturing means further retaining the first OE device 50 in optical engagement with the second OE device 60, and the first OE device 50 further having a plurality of degrees of positional freedom associated therewith (provided by actuators 74, 76, and 78; column 3, lines 50-55);

an error detection means (including sensing element 62 and controller 66) for generating a positional error signal, whenever either of the first and second OE devices has deviated from a desired optical alignment with respect to the other (column 4, lines 16-34); and

a real-time actuation means (actuators 74, 76, and 78), responsive to the error detection means, the actuation means configured for automatically adjusting the position of the first OE

device so as to bring the first OE device in the desired optical alignment with the second OE device so as to compensate for positional drifts of either of the first and second OE devices with respect to one another (column 4, lines 16-34).

Similarly, regarding claim 13, Palen et al. disclose a method for automatically adjusting the optical alignment of devices within an active, optoelectronic (OE) system (Figure 3), the method comprising:

optically coupling a first OE device (fiber 50) to a second OE device (detector 60) in a desired optical alignment;

maintaining the second OE device in a fixed position (Figure 7 shows detector 60 mounted on monolithic body 67; column 4, lines 30-34) while retaining the first OE device in moveable optical engagement with the second OE device, the first OE device further having a plurality of degrees of positional freedom associated therewith (provided by actuators 74, 76, and 78; column 3, lines 50-55);

generating a positional error signal (using sensing element 62 and controller 66) whenever either of the first and second OE devices has deviated from the desired optical alignment with respect to the other; and

responsive to the error detection means, automatically engaging a real-time actuation means to adjust, in real time, the position of the first OE device so as to bring the first OE device in the desired optical alignment with the second OE device to compensate for positional drifts of either of the first and second OE devices with respect to one another (using actuators 74, 76, and 78; column 4, lines 16-34).

Regarding both claims 1 and 13, Palen et al. further disclose a plurality of actuator mechanisms 74, 76, and 78, each of the plurality of actuator mechanisms capable of imparting a translating motion upon the first OE device (column 3, lines 53-55), and they also generally disclose that the actuators are coupled to the first OE device.

Palen et al. are silent regarding further implementation details of the actuator mechanisms in their system and do not specifically disclose that the second actuator has a second linkage directly coupled to a first actuator that is directly coupled to the first OE device or that the third actuator has a third linkage directly coupled to the second actuator mechanism.

However, Dee et al. teach a system related to the one disclosed by Palen et al., including means for positioning and aligning an optical fiber 56 along three orthogonal axes (Figure 1; column 2, lines 41-65). They further teach a first actuator with a first linkage directly coupled to the fiber 56 (y-axis platform 38); a second actuator with a second linkage (x-axis platform 34) directly coupled to the first actuator mechanism; and a third actuator having a third linkage (z-axis platform 32) directly coupled to the second actuator mechanism, the third actuator mechanism being affixed within the housing/package (column 2, lines 41-65; column 3, lines 62-67; column 4, lines 1-53).

Regarding claims 1 and 13, It would have been obvious to a person of ordinary skill in the art to implement the actuator means disclosed by Palen et al. with the structure taught by Dee et al. as an engineering design choice of a way to implement the actuators so that they controllably move the first OE device in all three dimensions (as already disclosed by Palen et al.; column 3, lines 53-55) and thereby effectively provide any spatial adjustment as desired in order to optimally align the first and second OE devices.

Further regarding claims 1 and 13, Palen et al. do not specifically disclose that monolithic body 67 such as shown in Figure 7 is a "housing." However, enclosed housings are well known in the art for protecting optoelectronic elements and connectors such as disclosed by Palen et al. Palen et al. also suggest a package 50 with respect to a discussion of another system shown in Figure 1 (column 1, lines 28-42). It would have been obvious to a person of ordinary skill in the art to specifically include a housing (such as by further extending the monolithic body 67 already disclosed) in the system disclosed by Palen et al. in order to protect the elements from external conditions and disturbances. One in the art would have been particularly motivated to provide a housing since the system is directed to maintaining a precise alignment between elements wherein undesired movement between elements should be minimized.

Regarding claims 2 and 14, Palen et al. discloses that the second OE device (detector 60) is affixed to a reference plane (Figure 7 shows detector 60 mounted to monolithic body 67). Palen et al. further disclose that the first OE device (fiber 50) is movably disposed on the monolithic body and that the monolithic body is affixed with respect to the second OE device (column 4, lines 30-34).

Regarding 15 in particular, Palen et al. discloses that the actuation means 74, 76, and 78 for adjusting the position of the first OE device is disposed on the monolithic body 67 (column 4, lines 30-34).

Further regarding claims 2, 14, and 15, again, Palen do not specifically disclose that monolithic body 67 such as shown in Figure 7 is a "housing." However, enclosed housings are well known in the art for protecting optoelectronic elements and connectors such as disclosed by Palen et al. Palen et al. also suggest a package 50 with respect to a discussion of another system

shown in Figure 1 (column 1, lines 28-42). Regarding claims 2, 14, and 15, it would have been obvious to a person of ordinary skill in the art to specifically include a housing (such as by further extending the monolithic body 67 already disclosed) in the system disclosed by Palen et al. in order to protect the elements from external conditions and disturbances. One in the art would have been particularly motivated to provide a housing since the system is directed to maintaining a precise alignment between elements wherein undesired movement between elements should be minimized.

Regarding claims 4 and 16, Palen et al. disclose that the first OE device is an emitting end of a fiber optic cable (i.e., fiber 50; column 3, lines 46-50; column 4, lines 4-6).

Regarding claims 5 and 17, Palen et al. disclose that the error detection means further comprises:

a beam position structure located so as to reflect a portion of an incident optical beam originating from the other of the first and second OE devices (the embodiment shown in Figure 6 shows a beam splitter which directs a portion of an incident beam to detector 61; column 4, lines 35-47); and

an optical sensing device (detector 61), the optical sensing device located so as to detect the reflected portion of the incident optical beam (column 4, lines 35-47);

wherein the optical sensing device generates the positional error signal, the positional error signal having a magnitude proportional to the degree of deviation from the desired optical alignment (column 4, lines 16-25).

Palen et al. do not specifically disclose "affixing" the disclosed beam splitter to one of the first and second OE devices, but it would be well understood in the art that such an element

would be mounted/supported among the other components in the system so that it would remain in a certain position to receive the incoming light signal. It would have been obvious to a person of ordinary skill in the art to affix the element in the system disclosed by Palen et al. in order to keep it in a fixed position during operation. One in the art would have been particularly motivated to affix the beam splitter in place since the system is particularly directed to providing optical alignment and relies on optical elements in the system to be fixed relative to the carefully controlled moving first OE device.

Regarding claims 6 and 18, Palen et al. disclose a controller (specifically, sensing element 62), converting the positional error signal to correction signal, the correction signal being inputted to the actuation means 74, 76, and 78 (column 4, lines 16-47).

Regarding claims 7 and 19, Palen et al. disclose a driver (specifically, controller 66) having the correction signal as an input thereto and an output for providing a controlled current to the actuation means 74, 76, and 78 (column 4, lines 16-47).

Regarding claim 10, Palen et al. disclose that the first, second, and third actuators 74, 76, and 78 are capable of translating the first OE device along first, second, and third axes, respectively, that are orthogonal to each other (i.e., the x, y, and z axes in three dimensions; column 3, lines 50-54).

Regarding claim 11, Palen et al. disclose that the error detection means (sensing element 62 and controller 66) compares the magnitude of optical power received by the second OE device to a desired optical power level (column 4, lines 16-47).

Regarding claim 12, Palen et al. disclose that the error detection means (sensing element 62 and controller 66) generates the positional error signal whenever the magnitude of optical

power received by the second OE device is less than the desired optical power level (column 4, lines 16-47).

Response to Arguments

3. Applicants' arguments filed 19 July 2005 have been fully considered but they are not persuasive.

In response to Applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Examiner respectfully notes that Palen et al. already disclose real-time actuation means, and the rejections rely on Dee et al. to provide teachings regarding a specific physical implementation of actuator mechanisms that are already generally disclosed by Palen et al. Palen et al. in fact already disclose three real-time actuator mechanisms for translating the OE device is three orthogonal axes as recited in the claims. Dee et al. simply teach how those three actuator mechanisms may be specifically arranged and coupled together to provide the already-disclosed three-dimensional translating motions.

Conclusion

4. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christina Y Leung
Christina Y Leung
Patent Examiner
Art Unit 2633